

IMPROVED WASTE GREASE COLLECTION TANK
AND METHOD FOR ITS USE

[0001] BACKGROUND OF THE INVENTION

[0002] Field of the Invention

[0003] This invention relates to an improved collection tank for the in situ collection of waste grease such as cooking oils or grease, and to a method of collecting the grease by elevating the tank and lowering it into a hot water bath to warm the walls and facilitate dumping of the grease.

[0004] Description of the Prior Art

[0005] It is well known to collect used or waste greases in collection or holding tanks at the point of use such as at a fast food restaurant or the like, then to collect the waste grease from such tanks for processing and/or recycling. U.S. Patents No. 4,450,828 and No. 5,718,228 disclose waste grease tanks used for collecting grease products, and a process for collecting the grease by a transport truck including a heating bath for heating the tank so that the grease can be easily dumped.

[0006] Under certain conditions, environmental protection considerations now require waste grease collection tanks to have double walls to guard against spillage or leakage in the event of an accidental rupturing or puncturing of the tank wall. However, such double-walled construction provides an insulating air space between the inner and outer container walls which makes submergence into a hot water bath particularly ineffective in warming the inner container wall to facilitate dumping of the solid or semi-solid waste grease.

[0007] It is therefore an object of the present invention to provide an improved double-walled collection tank which facilitates emptying of waste grease from the tank.

[0008] It is another object to provide a double-walled collection tank which may be quickly and effectively heated by dipping into a hot water bath to facilitate emptying of the solid or semi-solid grease stored therein.

[0009] Another object is to provide an improved method of emptying solid or semi-solid waste grease from a double-walled collection tank.

[0010] SUMMARY OF THE INVENTION

[0011] In the attainment of the foregoing and other objects, an important feature of the present invention resides in providing an improved double-walled waste grease collection tank, and an improved method for heating the tank and dumping the waste grease by use of a collection truck of the type disclosed, for example, in the above mentioned U.S. Patents No. 4,450,828 and No. 5,718,228, in which the collection tank is dipped into a container of hot water for melting or softening the grease at the tank surface to facilitate dumping. The disclosures of U.S. Patent No. 4,450, 828 and No. 5,718,228 are incorporated herein by reference.

[0012] The improved grease tank of the present invention comprises spaced inner and outer container portions each having a bottom wall and upwardly extending sidewalls which, container portions are rigidly joined and retained in spaced relation to provide a defined space therebetween. The inner and outer container portions are joined at the top by a continuous flange or top wall portion. The sidewalls of the inner container portions may incline slightly outwardly from the bottom wall to facilitate dumping.

[0013] In order to enable use of a double-walled collection tank of the invention with a waste grease collection truck in which the tank is partially submerged in hot water, the outer container wall of the tank is provided with one or more openings which may be closed with a removable plug or other closure element. In use of the tank for in situ collection of waste grease, a removable closure is mounted in the opening to provide a sealed outer container meeting the requirements of environmental protection regulations. When the tank is to be emptied, it is prepared for removal and emptying at the collection site by removing the removable closure plugs, whereupon it is then lifted into position above the hot water bath on the collection truck. The tank is then lowered into the hot water bath so that hot water flows through the apertures in the outer wall of the tank into the space between the double walls to heat the inner wall and thereby melt or soften adjacent solid or semi-solid grease. The tank is then lifted above the hot water bath and the water in the double-walled tank portion is permitted to drain from the openings before the waste grease is dumped in the conventional manner shown in U.S. Patents No. 4,450,828 and No. 5,718,228. The tank is then returned to its previous position and the removable closures are then replaced to provide a sealed double-walled tank.

[0014] BRIEF DESCRIPTION OF THE DRAWINGS

[0015] Other features and advantages of the invention will be apparent from the detailed description contained herein below, taken in conjunction with the drawings, in which;

[0016] Figure 1 is a sectional view, in perspective, of a waste grease collection tank according to the invention; and

[0017] Figure 2 is an enlarged sectional view, taken along line 2-2 of Figure 1.

[0018] DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0019] Referring now to the drawings, an improved waste grease collection tank according to the invention is designated generally by the reference numeral 10 in Figure 1 and includes an inner container portion 12 and an outer container portion 14, each of generally rectangular configuration and joined at or near their opened tops by a continuous, stepped flange-like top wall 16 to retain the inner and outer containers 12, 14, in spaced relation to one another to define an open space 18 therebetween. Preferably the inner and outer container portions 12, 14, are each formed of substantially flat steel plates continuously

welded, although the respective containers can be formed by other means such as by deep drawing.

[0020] The inner container portion 12, has opposed upwardly extending and preferably slightly outwardly inclined sidewalls 20, 22, end inner walls 24, only one of which is shown in Figure 1, and a substantially flat bottom wall 26. Similarly, outer container 14 portion comprises upwardly extending sidewalls 28, 30, opposed end walls each spaced outwardly from the end walls 24, and a bottom wall 32. The stepped flange 16 provides a ledge 34 which serves as a seat for a suitable lid or cover (not shown) for the tank.

[0021] The outer container portion 14 is provided with a plurality of closable openings 36 formed in the side- and/or end walls thereof adjacent to its bottom wall and one or more vent openings 38 adjacent its top edge.

[0022] The openings 36 serve as fill openings to permit hot water to enter the space 18 when the collection tank is submersed in the hot water bath carried by a collection truck to fill the space 18 to the level of submergence of the tank. To facilitate this filling, air in the space 18 can escape through the vent openings 38.

[0023] In use, in order to provide the double-walled environmental protection feature, the fill openings 36 are closed by removable closures or plugs until the tank is to be emptied. Thus, as shown in Figure 2, the wall 30 may be provided with a threaded weldment 40 which will normally be closed by a removable threaded plug 42. Alternatively, the fill holes 36 may be sealed by a quick release expanding plug suitable to maintain the fluid tight integrity of the outer container portion 14. Also, vent openings 38 may, if desired, be closed by removable closure members.

[0024] The improved collection tank according to the invention is disposed normally at the place of use to collect waste grease. During this time, the fill openings 36 are sealed by the closure members 42, and if desired, the vents 38 may also be closed. When the full tank is to be emptied, the grease collection tank is moved into the collection position and the fill plugs 40 are removed. At the same time, if vent closures are used, those closures are also removed. The filled tank is then lifted and lowered into the hot water bath carried by the collection truck so that the hot water flows through the openings 36 to fill the space 18 to the level of submersion. The hot water in contact with the walls of the inner container portion 12 quickly melts or softens the portion of the solid or semi-solid grease in the

container adjacent the walls. The tank is then lifted and held above the hot water bath for a sufficient time for the water to drain from the fill openings 36. The container is then moved into a position over the waste grease transport tank on the collection truck, and dumped in the conventional manner. The tank is then lowered and returned to the in situ collection site, whereupon the drain plugs 42 and vent plugs are replaced. Thus, one can see that providing direct contact of the hot water bath with the inner wall of the double-walled waste grease collection tank speeds the collection tank emptying process.

[0025] While a preferred embodiment of the invention has been disclosed and described, it is to be understood that the invention is not restricted solely thereto but rather that various modifications may be made without departing from the spirit and scope of the invention.